

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
14 July 2005 (14.07.2005)

PCT

(10) International Publication Number
WO 2005/062941 A3

(51) International Patent Classification⁷: **G01B 9/02**

(21) International Application Number:
PCT/US2004/043378

(22) International Filing Date:
22 December 2004 (22.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/531,147 22 December 2003 (22.12.2003) US

(71) Applicant (for all designated States except US): **BOSSA NOVA TECHNOLOGIES, LLC** [US/US]; 606 Venice Boulevard, Suite B, Venice, CA 90291 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **POUET, Bruno** [FR/US]; 12048 Culver Blvd, #208, Los Angeles, CA 90066 (US).

(74) Agent: **OSHA, Jonathan**; Osha & May L.L.P., 1221 McKinney St., Suite 2800, Houston, TX 77010 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

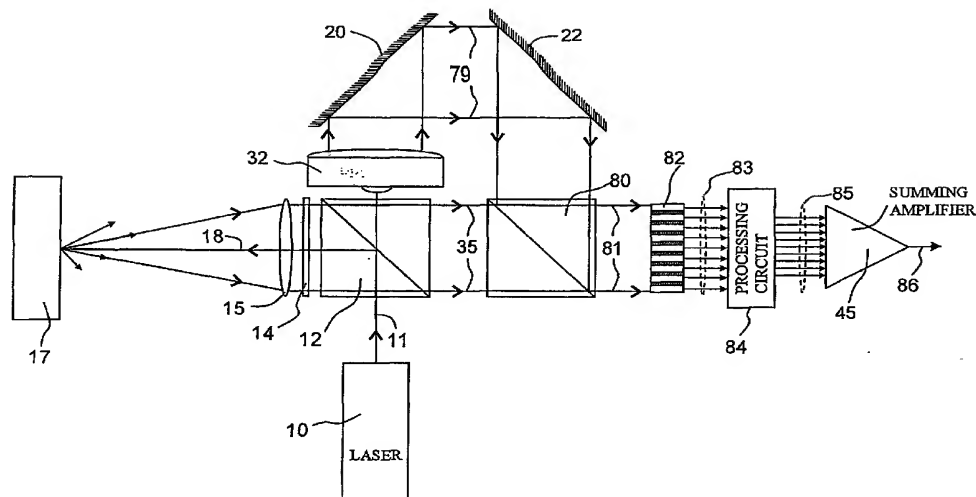
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: MULTI-CHANNEL LASER INTERFEROMETRIC METHOD AND APPARATUS FOR DETECTION OF ULTRASONIC MOTION FROM A SURFACE



(57) Abstract: A multi-channel laser interferometric method and apparatus are provided for optically measuring transient motion from a surface (17). A laser beam (11) is generated and then divided into first and second beams having respective intensities representing minor and major fraction of the predetermined laser intensity. The reference beam (18) illuminates the surface (17) at which deformation is expected. The light back-scattered by the surface is collected by a single aperture lens (15) and then made to interfere with the probe beam (67) which has been expanded (32), onto a two-dimensional array of detectors (71). Each signal (83) corresponding to each detector of the array is converted individually to an electrical signal, each electrical signal is amplified and processed (84), and the plurality of processed signals (85) is then averaged in an electrical summing means (45).

WO 2005/062941 A3



(88) Date of publication of the international search report:

1 September 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.